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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,115	05/31/2000	Jueng Gil Lee	CDST-C130-1P	7774
7590 06/04/2004			EXAMINER	
Wagner Murabito & Hao LLP Two North Market Street Third Floor San Jose, CA 95113			ROY, SIKHA	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/588,115

Applicant(s)

LEE ET AL.

Examiner

Sikha Roy

Art Unit

2879

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20-24 and 47-57 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 20-24 and 47-54 is/are allowed.  
6) ☒ Claim(s) 55-57 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 31 May 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 19, 2004 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 5,894,188 to Chakvorty et al. and further in view of U.S. Patent 6,265,822 to Kuroda et al.

Referring to claim 55 Chakvorty et al. disclose (column 3 lines 6-15, column 5 lines 40-62 Fig. 1C) an electrode (cathodic) structure for a flat panel display device comprising a metallic layer (aluminum strip) 103 over which a protective layer (cladding layer) 104 is deposited. Chakvorty further discloses that mask and etch steps are performed to form the multilayer electrode (column 6 lines 8,9, step 213, Fig.2).

Regarding claim 55 Chakvorty et al. do not exemplify the multilayer metal electrode comprising silver alloy.

Kuroda et al. in relevant art of electron beam apparatus disclose (column 15 lines 61-67) cold cathode elements disposed in matrix pattern and the conductive material used for electrodes selected from metals such as Mo, W, Ti, Cu, Pd and Ag and alloys of these metals. It is further noted these metals and their alloys can be formed easily by using a combination of a film forming technique and patterning technique and etching providing a fine particle film having excellent electron emission characteristics (column 15 lines 22-25). The lower the content of the transition metal (copper, palladium) the lower becomes the thin film resistance, when the electrode serves as a wiring conductive layer.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the aluminum electrodes of Chakvorty by silver alloy comprising palladium, copper and titanium as disclosed by Kuroda et al. for forming the electrodes easily by vapor deposition in the form of thin film with excellent emission characteristics.

Regarding claim 56 Chakvorty and Kuroda et al. disclose the claimed invention except for the limitation of range of concentration of palladium, and copper in silver alloy from .5 to 2 atomic percent. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would have been obvious to one having ordinary skill in the art at the time the invention was made to

Art Unit: 2879

provide, the range of concentration of palladium and copper from .5 to 2 atomic percent, since optimization of workable ranges is considered within the skill of the art.

Regarding claim 57 Chakvorty and Kuroda et al. disclose the claimed invention except for the limitation of range of concentration of palladium and titanium in silver alloy from .5 to 2 atomic percent. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide, the range of concentration of palladium and titanium from .5 to 2 atomic percent in silver alloy, since optimization of workable ranges is considered within the skill of the art.

### ***Allowable Subject Matter***

Claims 20-24 and 47-54 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Regarding claims 20 and 47, the references of the Prior Art of record fails to teach or suggest the multiplayer electrode with the combination of the limitations as set forth in claims 20 and 47, and specifically comprising the protective layer including an molybdenum and tungsten alloy.

Claims 21-24 and 48-54 are allowable for the reasons given in claims 20 and 47 because of their dependency status from claims 20 and 47 respectively.

Art Unit: 2879

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,448,708 to Chakravorty et al. discloses emitter electrode comprising aluminum and neodymium alloy and protective layer formed of molybdenum and tungsten alloy.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

*S.R.*

Sikha Roy  
Patent Examiner  
Art Unit 2879

*msz 5/3/04*  
*Mariceli Santiago*